

Name: _____

AP ENVIRONMENTAL SCIENCE : SUMMER READING

2011 - 2012

A Walk in the Woods ...by Bill Bryson (there is an audio version as well)

Summary Review Worksheet: Multiple Choice and Essays Due the First day of class 2011

What did you enjoy most about this reading assignment?

What did you enjoy least about this reading assignment?

If you have visited any of the places discussed in the story, how do your observations and memories compare to the authors accounts?

If you have not visited or hiked a section of the Appalachian Trail, do you now think that you would like to?

Has reading this book had an impact on your thoughts about the environment in general? Yes or No, please explain.

Short Essays

Directions: Write a few paragraphs of response to each essay topic.

1) Describe the damage to the environment that Bryson and Katz witness as they hike the Appalachian Trail. Include the day hikes Bryson takes in Pennsylvania in the evaluation of environmental issues.

2) Analyze and discuss the men's reaction to what they see.

3) How can individuals and groups get involved with the preservation of the AT? Explain why you think that preservation activities are or are not worthwhile?

4) *Would you be interested in participating in a weekend volunteer activity on the AT this school year?*

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Chapter 1 to Chapter 21 Review

Multiple Choice Questions

Directions: Circle your choice for the correct answer.

1. What is the fate of any enterprise in America that does not reinvent itself?

- a) It continues to struggle.
- b) It is considered quaint.
- c) It is superseded or abandoned.
- d) It retains a loyal following

3. What happens to Bryson and Katz in the lagoon at Moxie Bald Mountain?

- a) They see a mother bear and cub.
- b) They both fall under the water.
- c) They get bitten by mosquitoes.
- d) They catch fish for dinner.

5. What is the strange move Katz makes when he realizes they have chosen too much food?

- a) He removes all the crackers, cookies and candy.
- b) He removes all items from the cart except the freeze dried.
- c) He removes most of the items then reloads with many canned beans.
- d) He abandons the full cart in the aisle, gets an empty cart and starts over.

6. What is the description of Georgia highlanders?

- a) Downtrodden and joyful
- b) Exceedingly poor but happy
- c) Constantly striving to gain acceptance
- d) Depraved, rude, uncivilized

7. How long is the average hike time for the complete trail?

- a) 2 months
- b) Four months
- c) 10 weeks
- d) 3 months

9. What is the physical condition of Bryson and Katz when they reach Clingman's Dome?

- a) Tired and drained
- b) Energetic
- c) Soaked and filthy
- d) Bloody and bruised

10. Which true story by author, Herrero, describes the injuries a grizzly can deliver quickly?

- a) A hunter got his face ripped off by a supposedly dead bear and survived.

- b) A woman tourist was attacked and her 3 month old baby was eaten whole by a bear.
- c) A bear tore all the skin from the back and the butt of a hiker squatting for a rest stop.
- d) A woman hiker got her leg bitten clean off and survived.

11. Who is the first person to hike the Appalachian Trail in a single summer?

- a) Bill Irwin
- b) Woodrow Murphey
- c) Earl Shaffer
- d) David Horton

12. What does Bryson discover when he walks to Kmart in Waynesboro?

- a) It is an easy walk along the highway.
- b) It is a short, boring walk.
- c) It is a pleasant, sunny walk.
- d) Walking to Kmart is harder than hiking the Appalachian Trail.

14. Who joins Bryson and Katz in Gravel Springs Hut?

- a) Loud, obnoxious hikers
- b) A father and son
- c) Chicken John
- d) John Connelly

15. How far had Bryson and Katz hiked when they parted ways?

- a) 250 miles
- b) 65 miles
- c) 175 miles
- d) 500 miles

16. Of what material are the shelters in the Rockies constructed?

- a) Stone
- b) Brick
- c) Pine branches
- d) Plywood

17. What does Bryson discover when it starts raining in the mountains of New England?

- a) He forgot his rain jacket.
- b) He forgot his waterproof backpack.
- c) He forgot his rain hat.
- d) He forgot his boots.

18. What is the percentage of through hikers who make it to the Hundred Mile Wilderness?

- a) 2
- b) 10
- c) 75
- d) 35

20. What does Bryson consider perfect about hiking in Vermont?

- a) He can commute with his car and be home at night to sleep in his own bed.
- b) Vermont reminds him of England.
- c) Vermont has level, easy hiking trails.
- d) Vermont has rolling fields and pleasant streams.

22. What is Bryson afraid is staring at him when he sees two glowing eyes in the darkness?

- a) A bear
- b) A cougar
- c) A wolf
- d) A skunk

24. What kills the Chestnut trees along the Appalachian Trail?

- a) Grubs
- b) Root rot
- c) A deadly Asian fungus
- d) Poisonous aphids

25. While Bryson climbs the first mountain, what is Katz doing well behind him?

- a) Making coffee and eating sugary snacks
- b) Pitching camp in midday for the upcoming night
- c) Sitting while reading maps
- d) Throwing items out of his heavy pack in a fit of temper

26. What does Bryson believe beauty has become for most Americans?

- a) Something to ignore
- b) Something to drive to
- c) Something to cherish
- d) Something to savor

27. How long is the Appalachian Trail?

- a) 1200 miles
- b) 2700 miles
- c) 800 miles
- d) 2100 miles

28. What is it like hiking in the Hundred Miles Wilderness?

- a) It is easier than the rest of the trail.
- b) It is pleasant and relaxing.
- c) It is a casual walk.
- d) It is slow and difficult.

29. What is the last long stretch of hiking for Katz and Bryson before ending the first part of their trek?

- a) The Appalachian Mountains
- b) White Mountains
- c) Hundred Mile Wilderness

d) Shenandoah National Park

30. Who is Bryson's hiking partner on his day hikes in New Hampshire?

- a) Stephen Katz
- b) Mary Ellen
- c) His wife
- d) Bill Abdu

32. In March and April, what percent of hikers drop out the first week?

- a) 14
- b) 5
- c) 10
- d) 20

33. What do Katz and Bryson decide to stop pretending?

- a) To be friends
- b) To be mountain men
- c) To be tough guys
- d) To be through hikers

35. What does Bryson notice while walking the trail in Georgia?

- a) Surrounding woods bring on almost a trance like state
- b) Paper and plastic bottle litter
- c) Infrequent swarms of biting flies
- d) Hours of quiet solitude

36. What is the third state through which Bryson and Katz travel?

- a) Tennessee
- b) North Carolina
- c) Maine
- d) Georgia

37. What is the unexpected factor with the snowstorm?

- a) Sudden onset
- b) The fierce wind
- c) Rapid accumulation
- d) The total lack of wind

38. What is located at the summit of Mt. Washington?

- a) An American flag
- b) A ranger station
- c) A petting zoo
- d) A cafeteria and gift shops

39. What do the dreary Georgia towns and the dreary people bring to mind?

- a) A tough working class of people

- b) A series of last settlements as the area nears the point of logged out
- c) An ambitious people in process of improving their lot
- d) The movie, Deliverance

41. What do Bryson and Katz have to cross over in the Maine woods?

- a) Man made rope ladders
- b) Farmland
- c) Lagoons and rivers
- d) Wooden bridges

42. What is the true creature of the Smokies?

- a) The salamander
- b) The black bear
- c) The raccoon
- d) The possum

43. What is the mountain that is a wall of rock 1,300 feet high above the Delaware River?

- a) Potomac Peak
- b) Potomac Mountain
- c) Kitattiny Mountain
- d) Washington Peak

45. How many Union troops does Stonewall Jackson capture at Harper's Ferry?

- a) 256
- b) 570
- c) 12,500
- d) 5,500

46. What stands at Fontana Lake's western end?

- a) A large shelter
- b) An electric dam
- c) A cabin
- d) Huge spruce trees

47. What was the name of the greatest hotel in the White Mountains?

- a) Bretton Woods Hotel
- b) The Crawford House
- c) Mount Washington Hotel
- d) The Profile House

49. What does the far shore of Fontana Lake border?

- a) The boundary of the Tennessee Valley
- b) The southern boundary of Great Smoky Mountain National Park
- c) The boundary of Smoky Mountain National Park
- d) The boundary of North Carolina

50. What is the name of the blind man who hikes the entire Appalachian Trail with his seeing eye dog?

- a) David Horton
- b) Bill Thorton
- c) Bill Irwin
- d) Woodrow Murphey

Name: _____ period: _____

APES Summer Reading Short Answer Questions

Directions: Answer the question with a complete sentence(s), cite your answer when "facts" are included.

1. *What is the total walking distance of the typical American in one week?*

2. *What are the benefits Bill Bryson believes he will get from hiking the Appalachian Trail?*

3. *Where does the Appalachian Trail begin in North Carolina? Where does the AT exit NC at it's northernmost end? (be specific with common location and geo-location coordinates)*

4. *How long is the average hike time for the complete trail?*

5. *What is Bryson's joking impression of God's plan for him?*

6. *Who maps out the actual paths and maintains the Appalachian Trail?*

7. How does Bryson describe the town of Hanover where he lives?

8. List the each of the states, in order, that the AT passes through as you walk from the southernmost end to it's termination point in the north.

AP Environmental Science 2011-2012

Summer Assignment(s)

Welcome to AP Environmental Science! The major topics of the class are as follows:

Energy Systems and Resources – atmosphere, soil, groundwater, and geology

The Living World – ecosystems and cycles

Populations – demographics, dynamics and growth

Land and Water Use – agriculture, forestry, mining, fishing and global economics

Energy Resources and Consumption – fossil fuels, nuclear energy, conservation and consumption

Pollution – types of pollution and its impact, waste disposal

Global Change – ozone, global warming, loss of biodiversity

This summer assignment will give you a brief overview of all of the topics we will go over this year by looking at some of the associated prerequisites and math calculations. Over the course of the year we will learn more about the science and social issues associated with each of the topics. There are five parts to the summer assignment, one of which is due at the end of June, another in July and two of which will be collected on the first day of class. If you have any questions about the assignment, feel free to email me at Stan.craddock@charchrist.com. If you work with someone else, be sure that your answers are in

your own words and not copied from a partner. The summer assignment will count for a significant portion of your first nine weeks grade. All work turned in must be your own work. The assignment will be graded as follows:

1. E-mail Me (25 points)

E-mail me with the following information by Friday **June 24th**:

- Brief introduction to YOU.
 - Why you are taking AP Environmental Science?
 - Why you think you will be successful on the AP Exam?
- * Feel free to e-mail me at any time with questions on the summer assignment. I will be out of town periodically so allow a few days for a response.

2. Prerequisite Knowledge and Skills – Quiz the first week of class.

3. Math Problems (105 points) – Due by Friday July 29th

- Drop it off in the office or mail it to me at Charlotte Christian School; Be sure that both your name and my name are visible.
 - 8 points for setting up the problem, 5 points for the answer, 2 points for neatness
- (oh yes, the use of calculators is not allowed and sloppy work on the AP exam could cost you the points that you want)

4. Current Events (100 points) – Due on the first day of class.

- Summaries and responses to 4 articles dealing with environmental issues; 25 pts. Each
 - (1) local to Charlotte or the town or county that you live in.
 - (1) specific to North Carolina or South Carolina.
 - (1) a national environmental concern of any country.
 - (1) focused on a global environmental issue.

You may have to be reading the newspapers, watching the local, national, and international news ...as well as surfing the web. If you travel abroad this summer, look for articles on environmental issues. Bonus

points will be given for the presentation and discussion of national and global issues that you have original news print from the country that you visited.

5. Summer reading: *A Walk In The Woods*, by Bill Bryson and comprehension worksheet.

Prerequisite Knowledge and Skills

AP Environmental Science is a college level course that combines content area from earth science, biology, chemistry, physics, math, and social studies. You are expected to enter the course with a good understanding of basic scientific and mathematical concepts and skills, as well as strong reading, writing, and speaking abilities. Although we will continue to develop these skills throughout the school year, your success in the class is also dependent upon what you bring to it at the onset. One goal of this summer assignment is to help you brush up on these skills and concepts. Over the summer, review the scientific concepts below as well as the mathematical calculations on the next page; we will be building upon and referencing them throughout the school year. You should be prepared to take a quiz on these skills and concepts during the first week of school. If you do not receive at least an 85% on the quiz, you will need to attend "help sessions" for tutoring until you are able to achieve an 85% on it.

Prerequisite Basic Scientific Concepts:

You should be familiar with the following terms/concepts from Biology, Chemistry, and Earth Science:

Organic vs. Inorganic

1st Law of Thermodynamics

Natural vs. Synthetic

2nd Law of Thermodynamics

Kinetic vs. Potential Energy

Entropy

Radioactive decay

Organism

Half life

Species

Law of Conservation of Matter

Population dynamics

Community

Ecosystem

Producers/Autotrophs

Consumers/Heterotrophs

Decomposers

Photosynthesis (reactants and products)

Cellular Respiration (reactants and products)

Aerobic vs. Anaerobic

Adaptation

Mutation

Gene

Trait

Chromosome

Gene pool

Natural Selection

Biodiversity

Extinction

Plate Tectonics

Weathering

Climate Change

Rocks vs. Minerals

Climate vs. Weather

Food webs

Succession

Urbanization

Toxicity

Air pollution

Noise pollution

Soil pollution

Water pollution

Plate Tectonics

Nutrient cycling

Agriculture

Water use

Solid and Hazardous waste

Ozone depletion

Renewable energy sources

Nonrenewable energy sources

Renewable resources

Nonrenewable resources

The full name of each of these chemical

abbreviations:

CO₂, CO, C₆H₁₂O₆, CH₄, H₂, H₂O, N₂, NO_x, NO₃⁻, NH₃, O₂, O₃, P, PO₄³⁻, S, SO₂, Cl, K, NaCl, Pb, Hg, Rn, U

Summer is a great time to get a head start on your vocabulary and chemistry flash cards.

Prerequisite Basic Mathematical Skills

Percentage

$$17\% = 17/100 = .17$$

- Remember that "percent" literally means divided by 100.
- Percentage is a measure of the part of the whole. Or part divided by whole.
- 15 million is what percentage of the US population? 15 million / 300 million = .05 = 5%
- What is 20% of this \$15 bill so that I can give a good tip? $\$15 \times .20 = \$15 \times 20/100 = \$3$

Rates

| | | | | | |
|------|-------------|-------|---------------|--------------|-----------------|
| Rise | $Y_2 - Y_1$ | slope | <u>change</u> | $y = mx + b$ | $\frac{dX}{dt}$ |
| Run | $X_2 - X_1$ | | time | | |

- All of the above are ways to look at rates. The second equation is the easiest way to calculate a rate,

especially from looking at a graph. Rates will often be written using the word "per" followed by a unit of time, such as cases per year, grams per minute or mile per hour. The word per means to divide, so miles per gallon is actually the number miles driven divided by one gallon.

- Rates are calculating how much an amount changes in a given amount of time.

Scientific Notation

Thousand = $10^3 = 1,000$

Million = $10^6 = 1,000,000$ (people in the US)

Billion = $10^9 = 1,000,000,000$ (people on Earth)

Trillion = $10^{12} = 1,000,000,000,000$ (National debt)

- When using very large numbers, scientific method is often easiest to manipulate. For example, the US

population is 300 million people or 300×10^6 or 3×10^8

- When adding or subtracting, exponents must be the same. Add the numbers in front of the ten and

keep the exponent the same.

- When multiplying or dividing, multiply or divide the number in front of the ten and add the exponents if

multiplying or subtract the exponents if dividing

Ex. $\frac{9 \times 10^6}{3 \times 10^2} = (9/3) \times 10^{(6-2)} = 3 \times 10^4$

Dimensional Analysis

You should be able to convert any unit into any other unit accurately if given the conversion factor.

Online tutorials are available:

http://www.chemprofessor.com/dimension_text.htm

<http://www.chem.tamu.edu/class/fyp/mathrev/mr-da.html>

Prefixes

m (milli) = $1/1000$ = 10^{-3}

c (cent) = $1/100$ = 10^{-2}

| | | |
|----------|--------------------|-------------|
| k (kilo) | =1000 | = 10^3 |
| M (mega) | =1,000,000 | = 10^6 |
| G (giga) | =1,000,000,000 | = 10^9 |
| T (tera) | =1,000,000,000,000 | = 10^{12} |

Math Problems

Answer the questions. Use a separate sheet of paper if necessary. Show all work

1) What is one million times one thousand? Show your work in scientific notation. Give the answer in

scientific notation and in words.

2) A population of deer had 200 individuals. If the population grows by 15% in one year, how many deer will there be the next year?

3) One year I had 40 AP Environmental Science students and the next year I had 50 Environmental Science students, what percentage did the population of APES students grow by?

4) Electricity costs 6 cents per kilowatt hour. In one month one home uses one megawatt hour of electricity. How much will the electric bill be? (be sure to look at the prefixes chart on the previous page for the conversion of kilo to mega)

5) Your car gets 15 miles to the gallon and your friend's car gets 25 miles to the gallon. You decide to go on a road trip to Virginia Tech, which is 300 miles away. If gas costs \$4 per gallon and you decide to split the gas money, how much money will you save in gas by driving your friend's car?

6) Virginia Beach is 10 miles wide and 30 miles long. If one inch of rain falls on Virginia Beach, how many cubic feet of rain fell on Virginia Beach. (Hint: convert all units to feet first).

7) An MP3 takes up about 16 kilobytes of memory per second of music. If you owned a one terabyte hard drive and filled it with only mp3s, how many days worth of music would you have?
(keep track of units: kilobytes to terabytes and seconds to days)

Current Events

In environmental science, it's important to know about current issues in the news. One of our goals for this course is to educate you about environmental issues that are important to our community, our country, and our world. We will be reading and discussing a variety of current events throughout the school year as well. This is a great opportunity to start thinking about the environment and how it affects us.

Over the course of the summer, find four articles that relate to environmental science. Topics include, but are not limited to:

pollution, climate change, environmental legislation, alternative energy sources, fossil fuels, human population growth, renewable resources, recycling/waste management, air quality, water quality, conservation/wildlife, food production/food safety, deforestation, GMOs (genetically modified organisms), etc.

This portion of the summer assignment must be typed in 12 pt. Times New Roman or a similar font. It must be double spaced.

On the **first day of class**, you should submit for each article:

- a copy of the article (5 points each)
- a summary of the article content (8 points each)
- a personal reaction (12 points each)

A few students will be asked to share an oral presentation of one of their articles.

Article

All articles should be current (May-Aug. 2011) and taken from a reliable source. The sources may be scientific publications, popular magazines, newspapers or the like. Try the NY Times (especially Tuesdays), Washington Post, National Geographic, Discover Magazine, Natural History Magazine, Scientific American, Science, Nature, etc. The articles should be long enough for you to write a substantial summary and well-thought out response. All bibliographic information should be visible on the article itself or included with the summary.

Summary:

Write a brief summary of each article and point out the major environmental themes discussed. Your summary should be no less than 150 words.

Personal Reaction:

Your personal reaction should clearly state your opinions and/or reflection on the article.

You can offer potential solutions, compare it to another environmental problem, ask questions about the article, or simply reflect on the article's content. Do not simply write, "This article was very interesting/good." Your written reaction should be no less than 150 words.

Some questions to drive your discussion:

- What are the key points made in the article?
- What are the points of view presented about this issue?
- Does the article teach you something new?
- Does it support or refute other information you've heard or read? How so/in what way?